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ABSTRACT

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A Cost-Benefit Model for the
Instructional Development Services

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ABSTRACT

Annual reports of instructional media and instructional development centers associated with higher education were surveyed to develop a cost-benefit model for better documentation of instructional development projects. The goal was to compare, contrast, and summarize the various reporting procedures used in annual reports. An analysis was made as to how "excellence in education" was being documented. A total of 214 responses were received, of which 180 were usable for this study. Though the survey found 563 categories, a "credible" cost-benefit model could not be found. Few annual reports attempted an interpretation about cost-benefit relationships.

Today many colleges and universities are experiencing rising costs and income reductions. As more restrictions are placed upon the budget, greater justification is being required for continuation of programs. During the past three years, the University of Delaware has experienced financial restrictions causing numerous position cuts. The Instructional Resources Center, which supplies both instructional media and instructional development services, has been required three times to justify its existence. Based upon both internal and external critical examinations of our reporting procedures, an apparent need was realized for better documentation of costs and benefits derived from our activities. An immediate question the Center had to address was if our reporting procedures (annual reports) could be improved upon. We wondered if a model of cost-benefit already existed. We decided to collect as many as possible annual reports of instructional media and development centers associated with higher education institutions. The goal was to compare, contrast, and summarize reporting procedures used in annual reports. From the preceding activity, the aim was to either locate or develop a model of cost-benefit recording procedures for instructional media and development centers.

An important point regarding how this research was approached must be addressed. The principal author of this paper is a practitioner: an instructional developer. Since he was required to justify our instructional development program, he went to the empirical and heuristic literature. Though his expertise does not include extensive knowledge in accountability, cost-benefit, nor economics of education, he thought he had to understand and use this body of knowledge to make a meaningful justification. He was searching for a pragmatic solution to his problem or a practitioner's attempt to apply the theory and research associated with the literature on cost-benefit. As a practitioner he really did not have the luxury to deal extensively with theory.

He needed an immediate justification that instructional development was worth the cost. All of this had to fall together with the "ax man" just a few steps behind us. It should be noted that during this time, the Center had already lost two positions with additional budget cuts probable.

A graduate assistant, who was completing her last year in the Masters of Business Administration, was hired to help on this project. Her responsibility was to look at the various annual reports and categorize their contents. This was done to attempt an objective point of view from someone not directly associated with the jargon and ways of media and development programs. She represented the business point of view of the industrial model of higher education that is becoming more prevalent. She also conducted part of the review of literature that dealt with relationship between cost-benefit and education.

The researchers were very concerned at the beginning of the research that the model they found was comprehensible. The importance of comprehensibility was discussed by Nicholls (1976) in a seminar on the problems with the use of a systems' approach. The major points that Nicholls made were that the user of a system must be able to comprehend the total system and the interaction of its parts. He gave an example of a city planner who developed a mathematical model of the total operation of a major city. Though the system met the criterion for being theoretically and conceptually sound, the city planner's superiors could not understand it. They were ill at ease with the system and just refused to try it. Since our model was intended in part for decision makers or evaluators external to our organization, it was necessary that they should understand what we were trying to demonstrate.

For the model to be most effective, it had to be designed to be used by two sets of administrators. The first administrator would be the director of the instructional media and development center. He would analyze the output with respect to behavior in the past and alternatives within the department for future flexibility and service. So the output must be in a usable form.

The second set of administrators would be those responsible for making decisions on whether to cut programs. It was required that they understood what the analysis meant in terms of the entire institution. This understanding would be facilitated by the use of the output in terms of the institution's accounting method and objectives.

Another point by Nicholls was that the system which is the responsibility of the user must be controllable by being relevant to the user's circumstances and experiences. If the user of the system cannot control it, he becomes frustrated and perceives the system as an exercise in futility. Therefore, the model we selected had to have meaning to us and must be able to bring about change.

When we started this project, we were not sure what kind of a model we needed. Hopefully, the annual reports would contain something to improve our procedures. Because of this vagueness as to what we would ultimately find, a case study approach was adopted for this project. Our goals were to identify categories of activities, examine if they reported costs related to these activities, and determine if they attempted cost-benefit analysis. Naturally, if an entire cost-benefit model was located, we would consider its "usefulness" and "comprehensibility."

Definitions

This report used Jamison and Wolfe's definitions for the following concepts:

Cost analysis identifies all the resources needed, estimates their unit prices (if possible), and constructs a "cost function" that relates the total cost of the program to the amount of resources used.

Cost-effectiveness analysis shows what effect varying the amount of input has on the output of the process.

Cost-benefit analysis attempts to assign dollar values to the products of the process.

Jamison and Wolfe (1976) presented a comprehensive picture of the process of economic analysis of experimental learning programs. With this process cost-effectiveness analysis includes cost analysis but goes beyond it by analyzing the relation between resource inputs and output levels. Cost-effectiveness analysis leads to the final stage of economic analysis cost-benefit analysis. At this level, judgmental decisions are made regarding how output varies with resource input levels and attempts to assign values to outputs. The intent of our research was to assign dollar values to the product (service) of the process (instructional development).

In 1972 the Carnegie Commission reported on the financial crisis existing in higher education. The development of the crisis was attributed to the growth of student populations in the 1950's and 60's with a concurrent rise in costs. The incoming funds were not sufficient to cover the expansion (due to growth) and the tremendous increases in costs. Jellema (1973) discusses the trend of deficits in private colleges from 1968 through 1971 and some of the major factors contributing to the deficits. Russell (1963) provides some reasons for shortages in both operating funds and capital funds, and also examines possible future sources of funds. One solution to the problem of growth is to form cluster colleges. Martin (1967) discusses the advantages and disadvantages encountered by cluster college structures.

In a paper on the economic problems of the performing arts, Baumol and Bowen (1965) state that there are two characteristics of non-profit organizations:

- a. They earn no return on investment.
- b. They claim to fulfill some social purpose.

These objectives structure the non-profit organization to produce the maximum quality in the services it offers, where quality becomes an end in itself. This results in the continual expenditure of available funds to enhance quality.

Baumol (1967) develops a model of a two sector economy where one sector has increasing productivity with a concomitant growth in costs and the other sector has constant productivity with costs rising at the same rate as that of the first sector. He states that education falls into the sector with constant productivity. Therefore, costs in education are going to rise at a rate comparable to the increases in output per manhour of the first sector. This implies a continuous growth in real costs for higher education. If at the

same time quality is to be maintained, then maximum efficiency must be achieved to compensate for the ever increasing real costs.

Bowen (1975) defines efficiency as the allocation of available resources that will maximize results. Several articles have been written on the different approaches to take that would increase efficiency in higher education. Russell (1963) examines different areas in the institutions where efficiency may be increased. Bowen (1972) recommends methods for increasing efficiency to reduce costs without impairing quality. Kemerer (1973) discusses procedures used in politics and business to maximize efficiency that can be adapted to education. Some methods include defining goals in operational terms and asking both students and staff to assess specified activities.

One method of controlling the allocation of limited resources is via the unit cost. The unit cost is a standardized measure derived by dividing the total expenditures of the organization by a measure of outcome such as contact period, credit, major program, curriculum or student (Witmer, 1972). This allows the comparison of cost between organizations or within the organization with respect to similar courses or departments or historical data (Tyndall and Barnes, 1962).

Witmer (1972) traces the development of unit costs in higher education. The following is a summary of his review which was classified into five sections: financial accounting in higher education; registrars' records; the units in unit cost studies; cost studies, historically; current cost concepts; and recent cost studies and procedural guides.

Financial Accounting in Higher Education

John D. Russell, in 1954, examined the development of a system to classify data on income and expenditures in colleges and universities. He described eight major efforts:

The 1910 Carnegie Report which proposed an accounting procedure that had to be implemented if an institution wanted a grant from the Carnegie Foundation.

In 1917 Christensen et. al. recommended the use of a standard classification of receipts and expenditures.

Trevor Arnett, in 1922, recommended the separation of current, endowment and plant funds.

In 1930 Lindsay and Holland state in their book "College and University Administration" that since accounting information is used as a base for future decisions, certain specified elements should be included in accounting data.

In 1935 a national committee prepared a report on Standard Reports with a classification scheme for expenditures.

In 1938 another national committee prepared a report on college and university business administration. The revision of this report was completed in 1968. It included the suggestion of classifying current expenditures by their object.

In 1966 Swanson, Arden and Still wrote "Financial Analysis of Current Operations of Colleges and Universities." This was a result of a united effort by four state and federal educational agencies.

Registrars' Records: The Units in Unit Cost Studies

In 1900 the College Entrance Examination Board provided standard definitions of academic subjects and consequently stimulated the adoption in 1909, of Carnegie units as "standards of achievement and progress.

In 1920 the record systems became standard for secondary schools, colleges and universities due to action by regional accrediting agencies.

Cost Studies, Historically

In 1955 Harvey Sherer noted that unit instructional cost had been computed since 1894. In 1915 the "Allen Survey" at the University of Wisconsin expressed its conclusions in terms of cost per full time student. In 1954 Thad Hungate suggested the use of cost per full time faculty member, the cost being composed of instructional expenditures. Stevens and Elliot suggested the adoption of a common accounting system in 1925. In 1932 the National Committee on Standard Reports for institutions of higher education expressed the need for a standardized technique in computing unit costs, if there was to be any significance of the costs outside the individual institutions. It proposed two plans: a) divide total expenditure by total full time equivalent enrollment, or b) distribute certain overhead costs (administration, library and physical plant) to instruction, research, extension and auxiliary enterprises in proportion to their budgets; then divide the results by the full time equivalent enrollment.

The influence of size on unit cost was noted in 1964 by Hanson. He found that the larger the school the lower the cost. The optimum size was the point where unit costs were at a minimum. In 1937 McNeely studied curriculum costs in several universities and found great variations. In 1937 Kilzer did a comparison study of curriculum costs in similar junior college and found some had unit costs six times higher than others. In 1958 Nels W. Hanson found larger schools to have lower unit costs. Doi and Russell, in 1960, offered an explanation for the differences in costs due to size. They attributed the differences to greater expenditures for administration and libraries, per student, by small institutions, to maintain comparable quality.

In 1953 W. E. Elmore concurred with the idea that "experience breeds efficiency" in higher education. Bowen suggested, in 1969, that higher

education may have constant productivity. In 1971 Jacobs found credits from morning classes to be less costly than those in the afternoon. Also in 1971 Smith stated that an increase in productivity is possible if faculty is willing to look at teaching methods from a cost conscious point of view.

In 1952 Bagley reported a correlation of .92 between his index of quality (which was based on five types of educational expenditures using figures from 1880), and the number of graduates listed in the 1924 Who's Who. In 1948 Bowyer reported that high expenditures in education within a state was followed, after 10 or 12 years, by positive economic development in that state. However, in 1968 Robertson said he found no evidence of a casual relationship between higher education in five Southern states and the growth of these states from 1940-65. In 1949 Lorne Wollatt concluded that the more money that is spent on education, the higher will be the resulting quality. Bloom agreed with Wollatt in 1956. A Connecticut study found little relationship between student achievement on standard exams and level of expenditure in 1956. Due to the inconsistent findings Knezevich and DeKoch, in 1960, called for an end to the assumption that "quantity equals quality" in education.

There were several studies conducted in an attempt to find ways of reducing unit costs. Among these are Magee who in 1931 reported that freshman classes had the lowest cost and the cost of sophomore, junior, senior, and graduate courses was increasingly higher. In 1959 Beardsley, Rume and Morrison expanded Magee's findings in their "memo to a College Trustee." They concurred with Magee that average costs increase as the number of curricular offerings increase. In 1962 Ikenberry suggested that inefficiency in higher education was due to the division of faculty and administration and their different responsibilities; the former controlling curricula while the latter control the budget. In 1960 Eckert found little difference between students taught

in different size groups, and Dressel expounded on the idea that cost reductions could even cause an increase in quality in an institution that offered an excess number of courses. In 1955 the "California and Western Conference Study" reported that teaching salaries had little effect on cost per student since other factors carried greater weight.

In their report of 1935, Reeves and Russell attempted to measure institutional quality using a financial approach.

Recent trends in expenditures by institutions of higher education were reported in the following articles. In 1952 Millett found that dollars expended on instruction had risen, but purchasing power per student had declined. He saw this as an increase in efficiency. In 1967 Balderson noted that in the past ten years the unit cost of higher education had grown at a much faster rate than in other sectors of the economy. In 1963 M. M. Chambers stated that operating costs in higher education increase faster than the number of students enrolled. He predicted that enrollments would double in the following ten years while operating costs would triple. In a report in 1961 Bokelman and D'Amico claim that a financial crisis could occur if the percentage growth of the subsystems is greater than the percentage growth of the entire system. Such is the case in education where the percentage growth of the instructional support services budget was greater than the growth of the system budget.

Current Cost Concepts

Opportunity cost has been investigated as an additional cost of education. In 1960 Schultz defended the loss of student earnings as a cost of education. Blitz, in 1962, claimed that the college student with his superior abilities, would probably earn more than a similar average employee. He estimated a per-

centage for potential earnings. Becker, in 1964, set a new percentage for the potential earnings of a college student.

In 1962 Machlup suggested that the cost of a college education should be adjusted to include the increase or decrease in expenditures of books, supplies, recreation, clothing, room and board. He also proposed the adjustment for government subsidies and loans to students. Daniere, in 1954, disagreed with Machlup saying that the adjustment for the difference in college students' expenditures should not occur "if students can purchase whichever combination of education and comfort they prefer and if the cost (and price) of either is independent of what we produce of the other."

In an effort to distinguish between present costs of higher education and an investment for the future, Schultz, in 1961, proposed a procedure for cost studies. He suggested identifying the consumption components of cost, subtracting this amount from total cost which would result in an amount that could be considered an estimate of the investment. Then calculate the rate of return.

Recent Cost Studies

The major recent cost studies include: Kettler, in 1953, who advocated the use of unit cost. The report by Knott in 1956 that led hospitals to discontinue training registered nurses after reviewing the costs of such programs. "A Sixty College Study" in 1956, that used a standard worksheet to counter the problems of variable accounting methods in different institutions. The study circumvented the cost-benefit issue by presenting the data in percentages of expenditures for various functions. The "Council of Ten Study" in 1954-55 concluded that there is a change in unit costs with a change in student mix, unit costs tend to be lowest when the number of curricula is lowest, there are

differences in unit cost within given academic disciplines, and cost functions are curvilinear.

The following are some procedural guides for studying unit costs. In 1954 Brammer suggested that costs be divided by both instructional program and level of instruction. In 1964 Reed expounded on the principles of cost analysis and illustrated the applications. In 1962 Evans and Hicks proposed a technique for the distribution of indirect, overhead, administrative, and supportive costs.

In conclusion Witmer (1972) presents a summary of a paper by Weathersby and Weinstein, written in 1970, which compares different analytical models of the university in its allocation of resources. The models range from very simple to highly developed, flexible and comprehensive.

Before the institution can decide on how to increase efficiency to decrease costs while maintaining quality, it must decide on its objectives. Meeth and O'Connell (1964) report on a study that compared the allocation of funds in 25 liberal arts colleges. They conclude that the objectives of institutions of higher education vary and the objectives affect cost.

It is the achievement of the institution's objectives that determine how effective it was. Palola et. al. (1971) suggest that institutional research leads to an increase in efficiency. The setting of goals and objectives within each institution is addressed through institutional research and self-study. Dressel and Dietrich (1967) discuss the problems facing an institution intent on self study and recommend that a self study plan should exist within the institutional structure. Stecklein (1970) discusses what institutional research should encompass and how active the research group should be in formulating and implementing policy. Dressel (1974) differentiates between institutional research and institutional self study. He focuses on the type

of data collection required for institutional research and its subsequent analysis. Winstead and Hobson (1971) discuss the strategies to move from "defining goals to objectives to management by objectives." It is necessary for each institution to compile its own data since each institution has a different internal and external environment with its own strengths and weaknesses. Juster (1972) examines several approaches to compiling microdata. He discusses sets of existing microdata their drawbacks and how they could be improved.

Once the objectives have been established then the institution must plan a strategy for achieving the goals and objectives. Neff (1971) discusses four propositions that should be considered when planning: "a) programs should in their entire formulation be conceptualized independently of existing organizational structures, b) university goals should be expressed in operational terms so that each goal can be funded as a program area, c) university goals should be centrally derived, and d) not all resources should be tied to definite programs." Meeth (1971) describes a procedure to follow on planning for the long term. He describes planning as "structuring for change." Meeth includes the type of data that should be collected and contends that the persons who formulated the plans should not be the ones to implement them.

Mayhew (1970) discusses curriculum planning, approaches to constructing curriculum and the techniques used in changing curricula. He notes the need for long range planning of faculty and finances. Bezdek (1972) discusses the present oversupply of college graduates and forecasts the demand and supply of graduates in different fields under different assumptions concluding that this data should be considered in making long range plans.

Thompson (1970) Describes the areas that should be included in academic planning -- the internal framework of the organization, the organization's policies, the graduations and programs. Includes a set of alternative plans with their corresponding costs as an example of the content of academic plans.

"Plans in Search of a Place" is an article from the Carnegie Commission which describes several different models of institutions of higher education that would be very flexible in accommodating expansion with less capital expenditure. Sutterfield (1971) describes a long range planning computer system for simulating an institution of higher education. This system does not require extensive special computer knowledge.

Both Binning (1971) and Johnson (1971) support the admissions area of the institution to increase enrollments. They see the rise in enrollment as an alternative solution to increasing productivity. Each of the authors suggest the use of the systems approach in dealing with admissions. In this way the institution would know what the student demand was and could offer curricula to fill the demand.

PPBS, the systems approach which originated in the federal government, is being spread to school administration. The following articles are from a symposium on "Planning-Programming-Budgeting System Reexamined: Development, Analysis, and Criticism" (1969).

Gross traces the development of PPBS which includes the initiation and development of cost benefit analysis. In the beginning stages of cost benefit analysis there was an emphasis on benefits that could be quantified in monetary terms. This has been broadened to include benefits that cannot be expressed in dollars, for example the number of lives saved by a certain program.

Schick contrasts the process and systems approaches within the political system. The process approach emphasizes the structure and methods whereas a systems approach focuses on the outputs. A description of the environmental factors that influenced the appearance and development of each system is also presented.

Dror discusses the above papers written by Gross and Schick. He criticizes Schick for presenting PPBS in the context of the American political system saying that it disguises the issues. Dror states one of the main points in the Gross paper involves the adaptability of PPBS to be molded to fit varying conditions.

Capron describes how PPBS would have to conform to be applied to state government. A major benefit being the availability of information needed by state government administrators.

The inadequacies of PPBS are discussed by Mosher. PPBS was initiated in the defense department, a department which had the qualities for PPBS to succeed. He cites the use of PPBS in other government agencies as being a problem since these agencies may have different constraints. Other inadequacies of the system include the cost of implementation, its simplified view of the world and the difficulty of quantifying outputs in standardized terms (monetary terms).

Muskin presents the adoption of PPBS to the needs of cities. This includes a description of how the system was implemented by New York and Philadelphia. A major difficulty was encountered in training the staffs.

Churchman and Schainblatt present a model of a program and discuss how the cost of the program could be derived by decomposing estimated expenditures by each government agency.

Widavsky (1969) focuses on the manner in which PPBS has constrained policy analysis. He believes policy analysis to be a broader concept of decision and policy making that includes political aspects and the uncertainty of the future. Jenkins and Zelman (1972) identified "9 pitfalls of PPBS." They are:

1. Staff time and need good skills for comprehension
2. Staff and community opposition
3. Lack of systems analysis -- educational benefits not measurable
4. Centralization -- distance between administrators and subordinates
5. Financial Resources -- funds needed for installation and implementation
6. Terminology -- vague terms, confuse staff and community
7. Not a Panacea
8. False efficiency -- bias towards low-risk proposals when having to choose between alternatives
9. Fiscal weapon -- personnel feel system designed to raise questions about their instructional programs rather than assist and provide information about their programs.

Weathersby (1971) differentiates between a leader and a manager stating that the former establishes the objectives while the latter formulates alternatives. When using a "quantified systematic system" new and better alternatives are generated rather than choosing the best from two sets of existing alternatives. The components of large problems are broken down

which allows one to focus on the areas causing conflicts. The allocation of resources should depend on how the program is satisfying its objectives plus the relative value placed upon its overall objectives. This will allow each organization to develop its own allocation system. He also suggests that there be a structure for the communication of values and objectives between leaders and managers, students and faculty etc.

Parden (1971) describes the 10 steps in a program budgeting cycle. The author proposes that the costs and benefits of each program be compared continuously to every other program.

Thompson (1971) deals with the application of PPBS to institutions of higher education and the problems that may arise. These include lack of support for both PPBS and the subsequent allocation of funds. This arises as a result of people at the operational level that do not understand the system, or the loss of allocations to their projects through the implementation of the system. Since the nature of PPBS is "centralized and directive," it will focus on the actual decision makers, usually central administration. This would make it more difficult for central administration to make unpopular decisions. Both Thompson (1971) and Peterson (1971) identify the increase in workload and the required trained staff to be major problems of PPBS. The quantity of data collection and analysis may overload resources to the point where there may be a lack of evaluation. Peterson (1971) also notes a possible impact of implementing PPBS as excluding faculty and students from participating in management. He also points to the cost discrepancies between humanities and science as having the affect of postponing the start-up of new programs.

Once overall objectives have been determined then a system must be devised to measure possible alternatives that will achieve the objectives. Linear programming techniques were found to be used to measure efficiency and then used to estimate a production function. A. A. Walters (1963) presents a survey of production functions and cost studies. The production functions include an algebraic model, statistical models, time series studies, cross section and industry studies. The cost functions include long vs. short run, and cross section and time series studies. C. P. Timmer (1971) measured the inefficiency of agriculture in each state to develop a Cobb-Douglas production function. Seitz (1971) analyzed efficiency in the steam electric generating industry. Pfouts (1961) presents a production function for a multiproduct firm. Lave and Lave (1970) develop a cost function for hospitals from the aspect of multiproduct firms. Aigner and Chu (1968) construct a production function for the firm in the industry that maximizes output from input combinations, assuming fixed technology. Diewert (1971) derives linear demand equations using the Shephard duality theorem.

McNamara (1971) reviews mathematical programming models developed for educational planning which include both departmental and systems level management in the university.

Newhouse (1970) develops an economic model for a hospital which tries to maximize both quantity and quality using costs as a measure of quality. While Smith, Miller and Galladay (1972) examine the use of physicians assistants to give primary medical care as an optimal alternative in the use of inputs into the production of medical services.

The methods for measuring alternatives include cost analysis and cost-benefit analysis. Cost analysis tries to estimate the total cost of an alternative. In "Budgeting for School Media: An Annotated Bibliography,"

Loertscher (1975) includes a review of cost analysis of instructional technology. Desmarais et. al. (1974) estimates the cost of computer assisted instruction at Bristol Community College and concludes that CAI is a viable alternative to teaching. Bramble et. al. (1975) determines the cost of courses transmitted by satellite and the areas where this strategy is efficient compared to other alternatives.

Cost benefit analysis entails estimating the total cost of each alternative and measuring each alternatives effectiveness (benefit). This determines a value that is assigned to the output of each alternative; subsequently the value for each alternative is compared. From this procedure an alternative with minimum cost and maximum benefit can be identified. Eastmond (1975) estimated the cost of CAI at Merrill Library at Utah State. He examined student attitudes towards CAI via a survey. Benefit was assessed as the number of student sessions and an approximate cost/unit was derived as a measure of the efficiency of that alternative.

Gallup (1977) examines two alternative teaching methods that teach the same course content. One method evaluates effectiveness based on achievement the other method evaluates attitude as the measure of output. Levin (1970) presents a study conducted to find the effect, if any of two types of teacher characteristics on student achievement analyzing the cost of each of the teacher characteristics. Hansen et. al. (1960) compared two types of teaching techniques on two types of students evaluating the cost of each alternative found each type of student achieved more with a particular teaching technique. The authors concluded that the alternative choosen depends on the type of student which you want to derive most benefit.

Heath and Orlich (1977) estimate the costs of audio tutorial instruction. However they state it is difficult to compare audio tutorial instruction to traditional instruction since it is difficult to establish a base. It is difficult to assess the developmental cost of a textbook or its specific objectives.

Procedure

A cover letter requesting annual reports for instructional media and instructional development centers plus mailing labels were sent to instructional improvement centers listed by Jerry Gaff (n=152), Gary Peterson's list of instructional media programs (n=76), and a random sample from a listing of AECT members who were directors, specialists, administrators or professors associated with instructional media and development centers (n=248). Besides the direct mail approach, printed requests for annual reports were placed in the professional newsletters and publications of the American Association for Higher Education and Association for Educational Communication and Technology.

As the annual reports arrived they were categorized by either instructional media or instructional development centers. As the various reports were read, distinct categories for each activity reported was created. The categories for instructional development centers were based upon those categories found by Centra. It should be noted that some of Centra's categories do not appear. This occurrence being a function of Centra's sample being four times the size of ours. Additional categories were developed to include community and personal development activities which were not listed as such in the Centra study. The categories for instructional media centers were generated as the various annual reports were read. For each activity found a check was made. If that activity was actually reported in the annual report, another check was made for that category. If a "cost" was recorded for that

activity, an additional check was made. Finally, if any sort of cost-effectiveness or cost-benefit analysis was made a fourth check was recorded. For the final check to be used, the cost-benefit relationship of the category had to be discussed. Just recording the activity and an associated cost without actually relating the two, was not considered adequate.

Results

Returns By Category

A total of 214 responses were received, of which 180 were usable for this study. Annual reports were received from 87 instructional media centers and 54 instructional development centers (Table 1). A total of 30 centers indicated that they did not submit any written annual reports.

Table 1

Total Responses

	<u>Instructional Media</u>	<u>Instructional Development</u>	<u>No Annual Reporting</u>
Universities	51	35	23
4 Year Colleges	17	11	12
2 Year Colleges and Consortiums	19	8	4
TOTAL	87	54	39

Instructional Development

As noted, the categories generated by Centra were used to analyze the annual reports on instructional development from the institutions of higher education. However, new activities were recorded in the reports, necessitating the development of additional categories for a total of 96 instructional development categories (Table 2). Table 3 summarizes the results into the five activities most frequently recorded in each type of institution, the types of activities that had cost recorded, and the number of institutions that addressed themselves to a cost-effective relationship.

The activity most often recorded in universities was the "circulation of a newsletter, articles etc." that are pertinent to teaching improvement or faculty development. This category also ranked second in four year colleges. The category ranking first in four year colleges was that of "listing projects completed during the year or presently being executed." This category also ranked third in universities but did not appear in the top five categories of two year colleges and consortiums. The activities most frequently recorded in two year colleges and consortiums were "sabbatical leaves," and "summer grants for projects to improve instruction or courses" ranking first and second respectively. A common category found in the top five of all institutions was "workshops, seminars, programs that explore various methods or techniques of instruction" ranking fifth in universities, third in four year colleges, and third in two year colleges and consortiums.

The "budget" was the category that had respective costs recorded. Ten universities recorded their "budget" as did two two year colleges and consortiums. There was no "budget" recorded in any of the four year college reports analyzed. Two universities also recorded the "cost of projects com-

pleted." And there were single cost recordings of the following categories, in universities: "Consortium Progress Report," "Media Production Fund," and "Prediction Models for Equipment Replacement Factors."

There were two institutions, a four year college and a two year college and consortium, that attempted to report a "cost-effective relationship via a theoretical model."

Miscellaneous Practices	# Record Activity	# Record Cost of Activity
Use of grants by faculty members for developing new or different approaches to courses or teaching:		
University	3	1
4 Year College	2	
2 Year College	2	
Visitations to other institutions or to other parts of this institution to review educational programs or innovative projects:		
University	1	
4 Year College	3	
2 Year College		
Faculty exchange program with other institutions:		
University	1	
4 Year College	2	
2 Year College		
Faculty take courses offered by colleagues:		
University		
4 Year College		
2 Year College		
Personal counseling provided individual faculty members on career goals and other personal development areas:		
University		
4 Year College	2	
2 Year College		
Service activities to elementary and secondary schools:		
University	1	1
4 Year College		
2 Year College		
Visitation by outside professors to speak to local departments on curricula (new methods):		
University		
4 Year College	3	
2 Year College		
Joined with other institutions to assemble an interdisciplinary course:		
University		
4 Year College		
2 Year College	1	
Funds available for expense to have conferences on local campus:		
University		
4 Year College	1	
2 Year College		

Miscellaneous Practices	# Record Activity	# Record Cost of Activity
Listing of professional staff:		
University	7	
4 Year College	3	
2 Year College	3	
Head count of uses of service:		
University	6	
4 Year College		
2 Year College		
Use of a "standard" accountability form costs, person, hours:		
University	1	
4 Year College		
2 Year College		
Projects listed:		
University	8	2
4 Year College	8	
2 Year College	1	
Listing Publications:		
University	2	
4 Year College	2	
2 Year College		
Coordinating the planning of instructional matters:		
University		
4 Year College		
2 Year College	1	
Initiate Program Proposals:		
University		
4 Year College		
2 Year College	1	

Institution Wide Practices	# Record Activity	# Record Cost of Activity
Annual Awards to faculty for excellence in teaching:		
University	2	
4 Year College		
2 Year College	1	
Circulation of newsletter, articles etc. that are pertinent to teaching improvement or faculty development:		
University	15	
4 Year College	7	
2 Year College	2	
A specific calendar period is set aside for professional development:		
University	1	
4 Year College		
2 Year College		
A periodic review of the performance of all faculty members:		
University		
4 Year College		
2 Year College	1	
Sabbatical leaves:		
University		
4 Year College	1	
2 Year College	5	
A policy of unpaid leaves that covers educational or development purposes:		
University		
4 Year College	1	
2 Year College		
Lighter than normal teaching load for first year faculty:		
University		
4 Year College		
2 Year College	1	
Temporary teaching load reductions to work on a new course, major course revision or research area:		
University		
4 Year College	3	
2 Year College		
Travel grants to refresh or update knowledge in a particular field:		
University	1	
4 Year College		
2 Year College	2	

Organizational Development	# Record Activity	# Record Cost of Activity
Goals:		
University	6	
4 Year College		
2 Year College	1	
General development of academic affairs:		
University	2	
4 Year College	2	
2 Year College		
General development of board of trustees and regents:		
University	1	
4 Year College		
2 Year College		
Support for campus based programs of staff development:		
University	1	
4 Year College		
2 Year College		
Institutional needs assessment:		
University	4	
4 Year College		
2 Year College		

Media, Technology, Course Development	# Record Activity	# Record Cost of Activity
Specialist on campus to assist faculty in use of AV aids in instruction including closed circuit TV:		
University	7	
4 Year College	2	
2 Year College	2	
Assistance to faculty in use of instructional technology as a teaching aid (e.g. programmed training or computer assisted instruction):		
University	5	
4 Year College	1	
2 Year College	1	
Specialists to assist faculty in constructing tests or evaluating student performance:		
University	4	
4 Year College		
2 Year College		
Specialists to assist individual faculty in instructional or course development by consulting on course objectives and course design:		
University	7	
4 Year College	5	
2 Year College	3	
Simulated procedures which enable faculty to learn and practice specific teaching skills:		
University	2	
4 Year College	2	
2 Year College	1	
Specialists to help faculty develop teaching skills such as teaching or leading discussions or to encourage use of different teaching - learning strategies as individualized instruction:		
University	1	
4 Year College	5	
2 Year College	4	
Special professional library readily accessible to faculty dealing with instructional methodology and teaching skills, psychology of learning and similar topics:		
University	1	
4 Year College	2	
2 Year College		
Media Production Fund:		
University	2	1
4 Year College		
2 Year College		

Media, Technology, Course Development	# Record Activity	# Record Cost of Activity
Prediction models for equipment replacement factors:		
University	1	1
4 Year College		
2 Year College		
Special funding/foundation directory:		
University	2	
4 Year College		
2 Year College		

Institution Wide Practices	# Record Activity	# Record Cost of Activity
Travel funds available to attend professional conferences:		
University	1	
4 Year College	1	
2 Year College	3	
Visiting scholars program that brings people to the campus for short or long periods:		
University	1	
4 Year College	4	
2 Year College	1	
Summer grants for projects to improve instruction or courses:		
University	2	
4 Year College		
2 Year College	4	
There is a campus committee on faculty development -- fellows:		
University	3	
4 Year College	6	
2 Year College	2	
Bag-lunch seminars on educational research:		
University	1	
4 Year College		
2 Year College	1	
Administrative efforts - Budget data collection:		
University	1	
4 Year College		
2 Year College		
Formalized faculty selection process:		
University		
4 Year College	1	
2 Year College		
Video tapes produced on workshops for faculty development:		
University		
4 Year College	2	
2 Year College		
Project/Consortium -- Committee on Faculty Project Development:		
University	1	
4 Year College	5	
2 Year College	1	

Institution Wide Practices	# Record Activity	# Record Cost of Activity
Retraining of faculty:		
University	1	
4 Year College		
2 Year College		
Consortium Progress Report:		
University	2	1
4 Year College		
2 Year College		
Grant Program - Growth:		
University	5	
4 Year College		
2 Year College		
Internship programs for GTA's courses:		
University	3	
4 Year College		
2 Year College		
Faculty overload leave with no salary:		
University		
4 Year College	1	
2 Year College		
Earn merit for involvement in developmental activities:		
University		
4 Year College	1	
2 Year College	3	

Miscellaneous	# Record Activity	# Record Cost of Activity
History:		
University	8	
4 Year College		
2 Year College		
Future plans:		
University	6	
4 Year College		
2 Year College		
Organizational structure:		
University	5	
4 Year College		
2 Year College	2	

Cost-Effectiveness	# Record Activity	# Record Cost of Activity
Cost-effectiveness data collection and analysis:		
University		
4 Year College	1	
2 Year College	1	
Cost-effectiveness model:		
University		
4 Year College	1	
2 Year College	1	

Analysis or Assessment Practices	# Record Activity	# Record Cost of Activity
Systematic ratings of instruction used to help faculty improve:		
University	1	
4 Year College	1	
2 Year College	2	
Formal assessments by colleagues for teaching or course improvement:		
University		
4 Year College	2	
2 Year College	2	
Systematic teaching or course evaluations by an administrator for improvement purposes:		
University		
4 Year College	2	
2 Year College	1	
System for faculty to assess their own strengths and areas needing improvement:		
University	1	
4 Year College	1	
2 Year College	1	
Classroom visitation by instructional resource person upon request followed by a diagnosis of teaching:		
University	1	
4 Year College	1	
2 Year College	1	
Analysis of in-class video tapes to improve instruction:		
University	2	
4 Year College	2	
2 Year College		
Faculty with expertise consult with other faculty on teaching or course improvement:		
University	3	
4 Year College	6	
2 Year College	2	
"Master teachers" or senior faculty work closely with new or apprentice teachers:		
University	3	
4 Year College		
2 Year College		
Use student course evaluations:		
University	5	
4 Year College		
2 Year College		

Analysis or Assessment Practices	# Record Activity	# Record Cost of Activity
Professional and personal development plan (or growth contract) for individual faculty members:		
University		
4 Year College	1	
2 Year College	2	
Discussion of assessment techniques used:		
University	2	
4 Year College		
2 Year College		
Program self-evaluation:		
University	3	
4 Year College		
2 Year College		
Consultants in faculty development available for consultations by member colleges:		
University		
4 Year College	1	
2 Year College		
Committees set up in each school with members from each department to serve as faculty development facilitators:		
University		
4 Year College	2	
2 Year College		
Office involved in institutional-research on their students:		
University		
4 Year College	2	
2 Year College		
Different grading of students (A, B, C or no credit):		
University		
4 Year College	1	
2 Year College	1	

Community Service	# Record Activity	# Record Cost of Activity
Public health - publicizing:		
University	2	
4 Year College		
2 Year College		
Conduct surveys to assess community needs:		
University		
4 Year College		
2 Year College	2	

Personal Service Career Planning	# Record Activity	# Record Cost of Activity
Career counseling:		
University	3	
4 Year College		
2 Year College		
Pre-retirement planning:		
University	2	
4 Year College		
2 Year College		
Relocation assistance job hunting:		
University	2	
4 Year College		
2 Year College		
Counseling services faculty:		
University	1	
4 Year College	1	
2 Year College		

Workshops, Seminars, Programs	# Record Activity	# Record Cost of Activity
That explore various methods or techniques of instruction:		
University	7	
4 Year College	7	
2 Year College	4	
That review subject matter or introduce new knowledge in a field:		
University	1	
4 Year College	7	
2 Year College	2	
Dealing with new or different approaches to develop curricula:		
University	1	
4 Year College	6	
2 Year College	2	
On testing and evaluating student performance:		
University	5	
4 Year College	2	
2 Year College	1	
To acquaint faculty with goals of the institution and type of students enrolled:		
University	1	
4 Year College	4	
2 Year College	2	
To help faculty improve their academic advising and counseling skills:		
University	1	
4 Year College	2	
2 Year College	3	
To help faculty improve their research and scholarship skills:		
University	1	
4 Year College	2	
2 Year College	2	
To improve the management of departmental operations:		
University		
4 Year College	3	
2 Year College	2	
That explore general issues or trends in education:		
University	1	
4 Year College	2	
2 Year College	1	

Workshops, Seminars, Programs	# Record Activity	# Record Cost of Activity
In faculty effective development improving interpersonal skills or their ability to work effectively in groups exploring educational values and similar topics:		
University		
4 Year College	1	
2 Year College	1	
Colloquia by outside speakers:		
University	1	
4 Year College	5	
2 Year College		
Conference retreat with a theme:		
University	2	
4 Year College		
2 Year College	2	
Acquaint faculty with some roles played in the community:		
University		
4 Year College	1	
2 Year College		

Budget/Monies	# Record Activity	# Record Cost of Activity
Budget:		
University	10	
4 Year College		
2 Year College	2	

Table 3

Instructional Development

RECORD ACTIVITY	Universities		4 Year Colleges & Consortiums		2 Year Colleges & Consortiums	
	Categories	Number of Institutions	Categories	Number of Institutions	Categories	Number of Institutions
	Circulation of news-letter, articles, etc. that are pertinent to teaching improvement or faculty development.	15	A list of projects and/or presently being executed.	8	Sabbatical Leaves	5
	Budget	10	Circulation of news-letter, articles, etc. that are pertinent to teaching improvement or faculty development.	7	Summer grants for projects to improve instruction or courses.	4
	A list of projects completed and/or presently being executed.	8	Workshops, Seminars, Programs that explore various methods or techniques of instruction.	7	Workshops, Seminars, Programs that explore various methods or techniques of instruction.	4
	History	7	Workshops, Seminars, Programs that review subject matter or introduce new knowledge in a field.	7	Specialists to help faculty develop teaching skills as lecturing or leading discussions or to encourage use of different teaching - learning strategies such as individualized instruction.	4
	Workshops, Seminars, Programs that explore various methods or techniques of instruction.	7	There is a campus committee on faculty development.	6	Workshops, Seminars, Programs to help faculty improve their academic advising and counseling skill.	3

Table 3--Continued

	Universities		4 Year Colleges & Consortiums		2 Year Colleges & Consortiums	
	Categories	Number of Institutions	Categories	Number of Institutions	Categories	Number of Institutions
RECORD COST	Budget	10		0	Budget	2
	List of Projects completed.	2				
COST/EFFECTIVE		0	Cost-effectiveness data collection and analysis for cost-effectiveness model.	1	Cost-effectiveness data collection and analysis for cost-effectiveness model.	1

Instructional Media

The activities most frequently recorded for instructional media are summarized in Table 4. "Addressing the question of quality with respect to increases in circulation and/or requests" was the category ranking first among universities, third in four year colleges and fifth in two year colleges from a total of 467 categories generated (Table 5).

A "description of the media center" ranked first in both the four year colleges and the two year colleges. The category ranking second in four year colleges was that of a "library in the structure of the Media Center." The library was either the central establishment or an adjunct to the media department. "Equipment loans" was another activity found in the top five recorded among (for) all institutions. This category ranked fifth with universities, fourth with four year colleges and third with two year colleges and consortiums.

In the section of activities that had a cost recorded the "media department budget" ranked first in the three types of institutions. The "cost of film loans" ranked second in universities and fifth in two year colleges, while the "media departments' expenditures" ranked second in both four year colleges and two year colleges. There were two media departments that addressed themselves to the "question of cost-effectiveness." The department in the four year college did so by deriving a unit cost for services rendered. The unit cost was a conservative estimate of commercial prices. The department in the two year college derived cost/FTE student from the total expenditures of the department.

Table 4
Instructional Media

	Universities		4 Year Colleges		2 Year Colleges & Consortiums	
	Category	Number Recorded	Category	Number Recorded	Category	Number Recorded
ACTIVITIES RECORDED	Address question of quality respect to increases in requests and/or circulation.	39	Description of the media department including its major activities.	17	A description of the Media Department including its major activities.	16
	Photography Production	32	A library as part of the Media center structure.	17	Summary of projects accomplished during the year.	13
	Graphics Production	32	Address question of quality with respect to increases in requests and/or circulation.	14	Equipment Loans	11
	Slides Production	26	Equipment Loans	13	Transparencies Produced	11
	Equipment Loans	26	Film Loans	12	Address the question of quality with respect to an increase in requests and/or circulation.	10
COST RECORDED	Department Budget	9	Department Budget	4	Department Budget	6
	Film Loans	9	Media Departments Expenditures	2	Media Departments Expenditures	5
	Photography Production	8	Cost of Audiovisual Unit	2	Films added to Collection	3
	Graphics Production	7	Cost of Production Unit	2	Cost of Production Unit	3
	Student employees in department.	7	Number of volumes added to library collection.	2	Film Loans	2

45

Table 4 --Continued

	Universities		4 Year Colleges		2 Year Colleges & Consortiums	
	Category	Number Recorded	Category	Number Recorded	Category	Number Recorded
COST EFFECTIVE			Address questions of cost-effectiveness by deriving a unit cost for services rendered. Unit cost taken from conservative estimate of commercial prices.	1	Address question of cost-effectiveness by cost/student from FTE students and total expenditures of their learning resource center.	1

Table 5

47

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Audiovisual Unit:				
University	24	22	6	1
4 Year College	3	3	2	
2 Year College	3	2	2	
Objectives of unit:				
University		3		
4 Year College				
2 Year College				
Equipment loans:				
University	26	22	3	
4 Year College	13	7		
2 Year College	11	9		
Software loans:				
University	1	2		
4 Year College	5	5		
2 Year College	3	2		
Loans per year:				
University		4		
4 Year College	3			
2 Year College				
Loans per year over 2+ years:				
University		12	1	
4 Year College		2		
2 Year College		4		
Loans per month:				
University		4		
4 Year College		1		
2 Year College		1		
Loans per semester:				
University				
4 Year College		2		
2 Year College				
Loans by equipment type:				
University		17	1	
4 Year College		5		
2 Year College		6		
Loans to department or unit:				
University		18	2	
4 Year College		5		
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Requests not filled:				
University		2		
4 Year College				
2 Year College				
Number of students served:				
University		1		
4 Year College				
2 Year College				
Instructional vs. non- instructional loans:				
University		2		
4 Year College				
2 Year College				
Loans to outside groups:				
University				
4 Year College		1		
2 Year College		2		
Counter service transactions:				
University	2	2		
4 Year College				
2 Year College				
Equipment sold during year:				
University	1	1		
4 Year College				
2 Year College				
Loans to faculty:				
University				
4 Year College		1		
2 Year College		2		
Long-term loans:				
University	6	4		
4 Year College	2	1		
2 Year College	1	1		
Long-term loans by equipment type:				
University		3		
4 Year College		1		
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Long-term loans per year over 2+ years:				
University		2		
4 Year College				
2 Year College				
Projectionists supplied:				
University	4	4		
4 Year College	1			
2 Year College				
Number of projectionists supplied to departments:				
University		1		
4 Year College				
2 Year College				
Number of projectionists supplied per year over 2+ years:				
University		2		
4 Year College				
2 Year College				
Number of projectionists supplied to instructional vs. non-instructional:				
University		1		
4 Year College				
2 Year College				
Percent of projectionists utilization per building:				
University		1		
4 Year College				
2 Year College				
Percent of projectionists utilization for weekends:				
University		1		
4 Year College				
2 Year College				
Percent of projectionists utilization for weekdays:				
University		1		
4 Year College				
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Equipment maintenance and repair:				
University	20	15	5	
4 Year College	3	2		
2 Year College	5	3	2	1
Number of repairs per year over 2+ years:				
University		5		
4 Year College		1		
2 Year College				
Number of repairs to each department or unit:				
University		2	1	
4 Year College		1		
2 Year College				
Number of hours spent on repairs:				
University		1		
4 Year College		1		
2 Year College		2		
Number of repairs per month:				
University		2		
4 Year College				
2 Year College				
Repair time per month (hours):				
University		4	1	
4 Year College				
2 Year College				
Repair time per year:				
University		1		
4 Year College				
2 Year College				
Number of repairs by equipment type:				
University		8		
4 Year College		1		
2 Year College				
Number of hours spent consulting design and supervision:				
University		1		
4 Year College				
2 Year College		57		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Number hours on AV installation, inventory, maintenance:				
University	3	2		
4 Year College				
2 Year College				
Number hours on TV installation, inventory, maintenance:				
University		1		
4 Year College				
2 Year College				
Number of hours for construction:				
University		1		
4 Year College				
2 Year College				
Number hours for special projects:				
University		2		
4 Year College				
2 Year College				
Number hours ECB related:				
University		1		
4 Year College				
2 Year College				
AV software and equipment deliveries:				
University	4	3	1	
4 Year College	3			
2 Year College	4	1		
Number of equipment set-ups:				
University	1	1		
4 Year College				
2 Year College	2	1		
Equipment in pool:				
University		1		
4 Year College				
2 Year College				
Number of operators supplied:				
University		1		
4 Year College				
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Number of consultations with director:				
University		1		
4 Year College				
2 Year College				
Projection lamps supplied to each department:				
University	4	3	2	
4 Year College				
2 Year College				
Video Tapes:				
University	3	2	1	
4 Year College				
2 Year College				
Sound reinforcement systems:				
University	1	1		
4 Year College				
2 Year College				
Television tape catalogue:				
University	1	1		
4 Year College				
2 Year College				
AV Inventory:				
University		3		
4 Year College		2		
2 Year College		1		
Equipment replacements due:				
University				
4 Year College				
2 Year College	1		1	
List of missing equipment:				
University				
4 Year College				
2 Year College	1	1		
New equipment:				
University				
4 Year College				
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Production unit requests per unit:				
University				
4 Year College	1	1		
2 Year College	1	1	1	
Production projects per month:				
University				
4 Year College	1	1		
2 Year College				
Production projects per semester:				
University				
4 Year College				
2 Year College	1	1		
Production unit:				
University	14	13	2	1
4 Year College	6	5	2	
2 Year College	7	6	3	
Objectives of unit:				
University		3		
4 Year College				
2 Year College				
Production projects per year:				
University		4		
4 Year College				
2 Year College	1	1	1	
Production projects per year over 2+ years:				
University		4		
4 Year College		3	1	
2 Year College	2	2		
Photography:				
University	32	32	8	
4 Year College	6	2		
2 Year College	8	5		
Number of jobs and hours:				
University		1		
4 Year College				
2 Year College	2	2	1	

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Number of jobs per year for 2+ years:				
University		14		
4 Year College				
2 Year College				
Activity per month:				
University		7	2	1
4 Year College				
2 Year College				
Activity per unit:				
University		7	1	
4 Year College		2		
2 Year College				
Slides:				
University	26	24		
4 Year College	10	6		
2 Year College	8	7		
Portraits:				
University	2	2		
4 Year College				
2 Year College				
Film processed:				
University	1	1		
4 Year College	3	2		
2 Year College	1	1		
Pictures shot:				
University	6	5		
4 Year College				
2 Year College				
Identification cards:				
University		3		
4 Year College				
2 Year College	2	2		
Prints:				
University	19	17		
4 Year College	6	4		
2 Year College	3	3		
Enlargements:				
University	1	1		
4 Year College	1	1		
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Motion picture footage:				
University	5	4		
4 Year College				
2 Year College				
Copy negatives:				
University	11	10		
4 Year College	1			
2 Year College				
Proof sheets:				
University	1	1		
4 Year College	1	1		
2 Year College				
Tape duplication:				
University	3	3		
4 Year College	3	3		
2 Year College				
Processing:				
University	8	7		
4 Year College				
2 Year College				
Photomicrograph:				
University	1	1		
4 Year College				
2 Year College				
Activity instructional vs. non-instructional:				
University				
4 Year College				
2 Year College				
Equipment loaned:				
University		1		
4 Year College				
2 Year College				
Mounting:				
University				
4 Year College	1			
2 Year College	4	3		
Film developed:				
University				
4 Year College	3	1		
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Filmstrips:				
University	2	2		
4 Year College				
2 Year College				
Printing:				
University	6	6	1	
4 Year College				
2 Year College				
Activity per year over 2+ years:				
University		2	1	
4 Year College				
2 Year College				
Offset impressions:				
University	2	1		
4 Year College				
2 Year College				
Typeset pages:				
University	1	1		
4 Year College				
2 Year College				
Copiers:				
University	2	3		
4 Year College				
2 Year College				
Duplications per unit:				
University				
4 Year College	1	1		
2 Year College	1	1		
Stencils:				
University				
4 Year College				
2 Year College	1	1		
Spirit masters for ditto:				
University				
4 Year College				
2 Year College	1	1		
Thermofax masters:				
University				
4 Year College				
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Lithography:				
University				
4 Year College				
2 Year College	1	1		
Duplications:				
University				
4 Year College	4	4		
2 Year College				
Copier activity per month:				
University		2		
4 Year College				
2 Year College				
Copier activity per year:				
University		3		
4 Year College				
2 Year College				
Graphics:				
University	32	31	7	
4 Year College	5	2	1	
2 Year College	9	6		
Activity per year over 2+ years:				
University		10	2	
4 Year College				
2 Year College				
Total job hours per month:				
University		4		
4 Year College	1	1	1	
2 Year College	3	3	1	
Activity in graphics instructional vs. non-instructional:				
University		3		
4 Year College				
2 Year College				
Average days needed to finish job in graphics:				
University		1		
4 Year College				
2 Year College				
Activity per unit:				
University		11	1	
4 Year College		1		
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Number of job hours per unit:				
University				
4 Year College				
2 Year College				
Activity per month:				
University				
4 Year College	1	1	1	
2 Year College				
Signs, charts and posters, brochures, logos:				
University	15	18		
4 Year College	6	5		
2 Year College				
Laminations:				
University	5	5		
4 Year College	2	2		
2 Year College	2	2		
Embosograph:				
University	2	2		
4 Year College				
2 Year College				
Dry mounts:				
University	8	8		
4 Year College				
2 Year College				
Transparencies:				
University	25	22		
4 Year College	5	4		
2 Year College	11	9		
Plastic forming:				
University	5	4		
4 Year College				
2 Year College				
Art for reproduction:				
University	5	3		
4 Year College				
2 Year College				
Illustrations:				
University	10	9		
4 Year College				
2 Year College				
		65		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Art presentation:				
University	1	1		
4 Year College				
2 Year College				
Lettering copy set:				
University	8	5		
4 Year College				
2 Year College				
Layouts:				
University	3	2		
4 Year College				
2 Year College				
Slides:				
University	5	5		
4 Year College				
2 Year College				
PMT prints:				
University				
4 Year College				
2 Year College	1	1		
Mat cutting and framing:				
University				
4 Year College				
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Library:				
University	3	3		
4 Year College	17	17		
2 Year College	5	4		
Objectives:				
University				
4 Year College	2	2		
2 Year College	1	1		
Description:				
University				
4 Year College	4			
2 Year College				
Summary of annual activities:				
University				
4 Year College	5	4		
2 Year College	1	1		
Number of volumes added to collection:				
University	1	1		
4 Year College	4	2	1	
2 Year College	9	9	2	
Library activities over 2+ years:				
University				
4 Year College	2	2		
2 Year College	1	1		
Number of LRC materials catalogued:				
University				
4 Year College				
2 Year College	7	6		
Number of LRC materials catalogued over 2+ years:				
University				
4 Year College				
2 Year College	2	2		
Number of periodicals added to collection:				
University				
4 Year College	2	2	1	
2 Year College	2	2		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Provide instruction in use of library resources:				
University				
4 Year College	1	1	1	
2 Year College	1	1		
Number of children's books borrowed:				
University				
4 Year College	1	1		
2 Year College				
Audio recordings new:				
University				
4 Year College	2	2		
2 Year College				
Audio recordings inventory:				
University				
4 Year College	2	2		
2 Year College				
Number of tapes and records listened to:				
University				
4 Year College	3	3		
2 Year College				
Number of AV materials added to collection:				
University				
4 Year College	4	2		
2 Year College				
Number of AV materials in circulation:				
University	1	1		
4 Year College	6	6		
2 Year College	3	3		
Microforms added to collection:				
University				
4 Year College	2	2		
2 Year College	4	4		
Inventory microforms:				
University				
4 Year College	4	4		
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Cartridge tapes new:				
University				
4 Year College	2	2		
2 Year College				
Cartridge tapes used:				
University				
4 Year College				
2 Year College				
Cartridge tapes inventory:				
University				
4 Year College	2	2		
2 Year College				
Cassette tapes new:				
University				
4 Year College	1	1		
2 Year College	5	5	1	
Cassette tapes used:				
University	1	1		
4 Year College	1	1		
2 Year College	3	3		
Cassette tapes inventory:				
University				
4 Year College	3	3		
2 Year College	4	4		
Film loops new:				
University				
4 Year College	1	1		
2 Year College	2	2		
Film loops used:				
University	1	1		
4 Year College	1	1		
2 Year College	3	3		
Film loops inventory:				
University				
4 Year College	2	2		
2 Year College	5	5		
Filmstrips new:				
University				
4 Year College	1	1		
2 Year College	5	5		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Filmstrips used:				
University				
4 Year College	1	1		
2 Year College	4	4		
Filmstrips inventory:				
University				
4 Year College	5	5		
2 Year College	8	8		
Kits new:				
University				
4 Year College	1	1		
2 Year College	2	2	1	
Kits used:				
University	1	1		
4 Year College	1	1		
2 Year College	1	1		
Kits inventory:				
University				
4 Year College	2	2		
2 Year College	3	3		
Records new:				
University				
4 Year College				
2 Year College	5	5		
Records used:				
University				
4 Year College				
2 Year College	3	3		
Records inventory:				
University				
4 Year College	5	5		
2 Year College	7	7		
Study print sets new:				
University				
4 Year College	1	1		
2 Year College				
Study print sets inventory:				
University				
4 Year College	1	1		
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Reel tapes new:				
University				
4 Year College				
2 Year College	3	3		
Reel tapes used (circulated):				
University				
4 Year College				
2 Year College	3	3		
Reel tapes inventory:				
University				
4 Year College	2	2		
2 Year College	7	7		
Slide sets and slides new:				
University				
4 Year College	3	3		
2 Year College	4	4		
Number of slide sets and slides used (circulated):				
University	1	1		
4 Year College	2	2		
2 Year College	4	4		
Slide sets and slides inventory:				
University				
4 Year College	4	4		
2 Year College	8	8		
Transparencies new:				
University				
4 Year College	2	2		
2 Year College	3	3		
Transparencies circulated:				
University				
4 Year College	1	1		
2 Year College	2	2		
Transparencies inventory:				
University				
4 Year College	4	4		
2 Year College	5	5		
Videocassettes new:				
University				
4 Year College	1	1		
2 Year College	2	2		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Videocassettes inventory:				
University				
4 Year College	1	1		
2 Year College	1	1		
Video tapes new:				
University				
4 Year College	3	3		
2 Year College	2	2		
Video tapes viewed:				
University	1	1		
4 Year College	1	1		
2 Year College	2	2		
Video tape inventory:				
University				
4 Year College	4	4		
2 Year College	4	4		
Number of students serviced:				
University				
4 Year College	1	1		
2 Year College				
Number of search requests per month:				
University	1	1		
4 Year College	1	1		
2 Year College	1	1		
Number of material missing per month:				
University				
4 Year College	1	1		
2 Year College				
Poster, charts, models, games, box formats - number new:				
University				
4 Year College				
2 Year College	3	3	1	
Miscellaneous (posters, charts, etc.) inventory:				
University				
4 Year College				
2 Year College	3	3		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Miscellaneous utilized:				
University	1	1		
4 Year College				
2 Year College				
Reference:				
University				
4 Year College	1	1		
2 Year College	3	2		
Direction and location assistance:				
University				
4 Year College	1	1		
2 Year College				
Card catalogue assistance:				
University				
4 Year College	1	1		
2 Year College				
Bibliographic assistance:				
University				
4 Year College	1	1		
2 Year College				
Reference - research questions:				
University				
4 Year College	1	1		
2 Year College	1	1		
Interlibrary loan:				
University				
4 Year College	3	3		
2 Year College	3	3		
Other reference:				
University				
4 Year College	1	1		
2 Year College				
In house usage:				
University				
4 Year College	1	1		
2 Year College				
Usage over 2 years:				
University				
4 Year College	1	1		
2 Year College	1	1		

Table 5--Continued

67

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Number of regular print loans:				
University	1	1		
4 Year College	3	2		
2 Year College	5	5		
Number of trade and technical books in circulation:				
University				
4 Year College	3	3	1	
2 Year College				
Number of government documents in circulation:				
University				
4 Year College	1	1	1	
2 Year College				
Regular print loans over 2+ years:				
University				
4 Year College	3	3		
2 Year College	1	1		
Regular print loans per month:				
University				
4 Year College	2	2		
2 Year College				
Number of reserve print loans:				
University				
4 Year College	2	2		
2 Year College	5	4		
Number on reserve:				
University				
4 Year College				
2 Year College	3	3		
Number of reserve loans over 2+ years:				
University				
4 Year College	3	3		
2 Year College	1	1		
Number of non-print loans:				
University				
4 Year College	1	1		
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Number of non-print loans over 2+ years:				
University				
4 Year College	1	1		
2 Year College	1	1		
Number of books mended or rebound:				
University				
4 Year College	1	1		
2 Year College				
Number of books reclassified:				
University				
4 Year College	2	2		
2 Year College	1	1		
Number of hours open per week:				
University				
4 Year College	1	1		
2 Year College				
Estimated shelving capacity:				
University				
4 Year College	1	1		
2 Year College				
Number of periodical subscriptions:				
University				
4 Year College	5	5		
2 Year College	8	8		
Number of newspapers received:				
University				
4 Year College	2	2		
2 Year College	4	4		
Number of newspapers added to collection:				
University				
4 Year College				
2 Year College	1	1		
Number of paperbooks added to the collection:				
University				
4 Year College	1	1		
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Number of paperbooks in circulation:				
University				
4 Year College	1	1		
2 Year College				
Library compared to other colleges in the State:				
University				
4 Year College	1	1		
2 Year College				
Staff comparison:				
University				
4 Year College	1	1		
2 Year College				
Enrollment:				
University				
4 Year College	2	2		
2 Year College				
Total circulation:				
University				
4 Year College	2	2		
2 Year College	8	7		
Library circulation activity per year over 2+ years:				
University				
4 Year College				
2 Year College	5	5		
Circulation by month:				
University				
4 Year College				
2 Year College	2	2		
Average daily circulation:				
University				
4 Year College				
2 Year College	1	1		
Periodicals circulation:				
University				
4 Year College				
2 Year College	4	4		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Growth total book collection over 2+ years:				
University				
4 Year College				
2 Year College	1	1		
Total library materials budget:				
University				
4 Year College	1	1		
2 Year College				
Library hours per week:				
University				
4 Year College	1	1		
2 Year College				
Periodicals budget:				
University				
4 Year College	1	1		
2 Year College				
Total book collection:				
University	1	1		
4 Year College	3	3		
2 Year College	10	10		
Book budget:				
University				
4 Year College	1	1		
2 Year College				
Average traffic flow: morning/day, afternoon/day and evening/day:				
University				
4 Year College	1	1		
2 Year College				
Student circulation per semester or year:				
University				
4 Year College	3	3		
2 Year College				
Faculty circulation per semester:				
University				
4 Year College	1	1		
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Patron count:				
University				
4 Year College	2	2		
2 Year College	1	1		
Number of books lost or stolen:				
University				
4 Year College	1	1		
2 Year College				
Average circulation per year:				
University				
4 Year College	1	1		
2 Year College				
Circulation by subjects:				
University				
4 Year College	1	1		
2 Year College	6	6		
16mm films shown:				
University				
4 Year College	1	1		
2 Year College				
Filmstrip record sets used:				
University				
4 Year College	1	1		
2 Year College				
Breakdown book collection by subject:				
University	1	1		
4 Year College				
2 Year College	2	2		
Percent of book acquisition by subject:				
University				
4 Year College				
2 Year College	1	1		
Breakdown by institution:				
University				
4 Year College				
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Number of duplicates:				
University				
4 Year College				
2 Year College	1	1		
Number discarded:				
University				
4 Year College				
2 Year College	4	4		
Resource files:				
University	1			
4 Year College				
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Television:				
University	25	21	2	
4 Year College	6	4		
2 Year College	3	1		
Activity per year for 2+ years:				
University		5		
4 Year College	3	3		
2 Year College				
Activity per unit:				
University		15	2	
4 Year College	1	1		
2 Year College				
Activity instructional vs. non-instructional:				
University		1		
4 Year College				
2 Year College				
Number hours TV production:				
University		5		
4 Year College				
2 Year College				
Video tape time recording:				
University	8	1		
4 Year College				
2 Year College	1	1		
Video tape playback:				
University	8	8		
4 Year College				
2 Year College	1	1		
Video dubbing:				
University	7	7		
4 Year College				
2 Year College				
Video dubbing per dept.:				
University	1	1		
4 Year College				
2 Year College				
Off air taping:				
University	6	4		
4 Year College				
2 Year College				

Table 5--Continued

74

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Operations:				
University	1	1		
4 Year College				
2 Year College				
Off air recording:				
University	2	1		
4 Year College				
2 Year College				
Remote recording:				
University	2	2		
4 Year College				
2 Year College				
Studio recording:				
University	2	2		
4 Year College				
2 Year College				
Record/edit - number of hours:				
University				
4 Year College	1	1		
2 Year College	2	1		
Record/edit - number of sessions:				
University				
4 Year College	2	2		
2 Year College				
Display/preview - number of hours:				
University				
4 Year College	2	1		
2 Year College	1	1		
Display/preview - number of sessions:				
University				
4 Year College	1	1		
2 Year College				
Number of transmissions:				
University				
4 Year College	1			
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Maintenance of equipment:				
University	2	2		
4 Year College				
2 Year College				
Video duplications:				
University	1	1		
4 Year College				
2 Year College				
Research and development:				
University	1	1		
4 Year College				
2 Year College				
Cable transmissions:				
University	4	4		
4 Year College				
2 Year College				
Video distributions:				
University	1			
4 Year College	1	1		
2 Year College				
Cable television:				
University	3	3		
4 Year College	2	2	1	
2 Year College				
Video tape production per month:				
University				
4 Year College	4	2		
2 Year College				
Number of video tapes produced:				
University				
4 Year College	2	2		
2 Year College	6	5		
Broadcasting educational television:				
University	4	4		
4 Year College				
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Videocassettes:				
University				
4 Year College	4	4		
2 Year College	1	1		
Number of free video tapes:				
University				
4 Year College				
2 Year College	1	1		
Number of rented video tapes:				
University				
4 Year College				
2 Year College	1	1		
Number of cable TV viewers:				
University	1	1		
4 Year College				
2 Year College				
Audio production:				
University	8	5	2	
4 Year College	3	2		
2 Year College				
Annual utilization:				
University		3	1	
4 Year College				
2 Year College				
Utilization per unit:				
University		2		
4 Year College	1	1		
2 Year College				
Number of production hours:				
University	7	7		
4 Year College				
2 Year College	2	2	1	
Number of hours (or tapes) duplication:				
University	10	9		
4 Year College				
2 Year College				
Cassette tapes produced:				
University	6	6		
4 Year College				
2 Year College	2	2		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Cassette tapes per department:				
University		1		
4 Year College				
2 Year College				
Scripting:				
University		1		
4 Year College				
2 Year College				
Sound on slide:				
University		1		
4 Year College				
2 Year College				
Script recording:				
University		3		
4 Year College				
2 Year College				
Master tape editing:				
University		2		
4 Year College				
2 Year College				
Master tape cue pulsing:				
University		1		
4 Year College				
2 Year College				
Order by unit:				
University		2		
4 Year College				
2 Year College				
Reel to cassette:				
University		1		
4 Year College				
2 Year College				
Reel to cassette per department:				
University		1		
4 Year College				
2 Year College				
Reel to reel produced:				
University	4	4		
4 Year College	1	1		
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Reel to reel by department:				
University		1		
4 Year College				
2 Year College				
Audio taping:				
University	1	1		
4 Year College	3	3		
2 Year College	6	3	1	
Production per month:				
University				
4 Year College	1	1		
2 Year College				
Television crawl:				
University				
4 Year College	1	1		
2 Year College				
Equipment and video check out:				
University				
4 Year College	1	1		
2 Year College				
Audiovisual productions:				
University				
4 Year College	1	1		
2 Year College				
Audiovisual productions per unit:				
University				
4 Year College	1	1		
2 Year College				
Slide tape:				
University				
4 Year College	2	1		
2 Year College	1	1		
Multi-image presentations:				
University				
4 Year College	1			
2 Year College				
Microfiche masters:				
University				
4 Year College	1	1		
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Courses recorded:				
University				
4 Year College	1	1		
2 Year College				
Microfiche duplicates:				
University				
4 Year College	1	1		
2 Year College				
Number of tape duplications:				
University				
4 Year College	3	3		
2 Year College	2	2		
Tape duplications by unit:				
University				
4 Year College				
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Computer printouts by department:				
University		2		
4 Year College				
2 Year College				
Instructor:				
University		2		
4 Year College				
2 Year College				
Service:				
University		2	1	1
4 Year College				
2 Year College				
Expenditure:				
University		2		
4 Year College				
2 Year College				
Labor hours:				
University		2		
4 Year College				
2 Year College				
Open university:				
University	1	1		
4 Year College				
2 Year College				
Number of courses per quarter:				
University		1		
4 Year College				
2 Year College				
Activity over 2+ years:				
University		1		
4 Year College				
2 Year College				
Enrollments:				
University		1		
4 Year College				
2 Year College				
Number of students receiving credit:				
University		1		
4 Year College				
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Radio station:				
University	4	4		
4 Year College				
2 Year College				
Listener response (survey results):				
University		1		
4 Year College				
2 Year College				
Multi-image service:				
University	1	1		
4 Year College				
2 Year College				
Production of shows:				
University	1			
4 Year College				
2 Year College				
Equipment consultation:				
University	1	1		
4 Year College				
2 Year College				
Electronic services:				
University	6	6	2	
4 Year College				
2 Year College				
Activity over 2+ years:				
University		1		
4 Year College				
2 Year College				
Activity - instructional vs. non-instructional:				
University		1		
4 Year College				
2 Year College				
Maintenance:				
University	2	2		
4 Year College				
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Test scoring forms processed per unit:				
University		1		
4 Year College				
2 Year College				
Silk screen items produced per unit:				
University		1		
4 Year College				
2 Year College				
P.A. set ups:				
University	2	2		
4 Year College				
2 Year College				
Instructional Media Lab (IML):				
University	5	7		
4 Year College				
2 Year College				
Consultations in the IML:				
University	1	1		
4 Year College				
2 Year College				
Previewing films:				
University	2	2		
4 Year College				
2 Year College				
Spirit masters:				
University	1	1		
4 Year College				
2 Year College				
Dry mounts:				
University	2	2		
4 Year College				
2 Year College				
Audio tapes:				
University	2	2		
4 Year College				
2 Year College				
Transparencies:				
University	2	2		
4 Year College				
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Laminations:				
University	2	2		
4 Year College				
2 Year College				
Video tapes:				
University	1	1		
4 Year College				
2 Year College				
Production by IML users:				
University	2	2		
4 Year College				
2 Year College				
Video equipment distributed by month:				
University	1	1		
4 Year College				
2 Year College				
Films used per month:				
University	2	2		
4 Year College				
2 Year College				
Studio time per month:				
University	1	1		
4 Year College				
2 Year College				
Media course enrollment by college:				
University	1	1		
4 Year College				
2 Year College				
Production assignments provided for faculty per quarter:				
University	1	1	1	
4 Year College				
2 Year College				
Production assignments provided for departments per quarter:				
University	1	1		
4 Year College				
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Number of tutorial labs - equipment:				
University	1	1		
4 Year College				
2 Year College				
Number of tutorial labs - graphics:				
University	1	1		
4 Year College				
2 Year College				
Listening Center:				
University	2	2	1	1
4 Year College				
2 Year College				
Number of programs by course name:				
University	1	1		
4 Year College				
2 Year College				
Number of calls by area:				
University	1	1		
4 Year College				
2 Year College				
Number of calls by course:				
University	1	1		
4 Year College				
2 Year College				
Instructional materials circulated by course:				
University	1	1		
4 Year College				
2 Year College				
Number of students served:				
University		2		
4 Year College				
2 Year College				
Hours available per year:				
University	1	1		
4 Year College				
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Number of instructors using listening center materials:				
University	1	1		
4 Year College				
2 Year College				
Equipment used by depart- ment:				
University	1	1	1	1
4 Year College				
2 Year College				
Number of hours equipment was used:				
University	1	1		
4 Year College				
2 Year College				
Professional service description:				
University	4	4		
4 Year College				
2 Year College				

	# With Activity	# Record Activity
Cinematography or Motion Picture:		
University	4	4
4 Year College		
2 Year College		
Number programs completed:		
University		4
4 Year College		
2 Year College		
Length of program in hours:		
University		2
4 Year College		
2 Year College		
Resident instruction film footage for 2 years:		
University		1
4 Year College		
2 Year College		
Non-resident instruction film footage for 2 years:		
University		1
4 Year College		
2 Year College		
Total minutes of release time for 2 years:		
University		1
4 Year College		
2 Year College		

	# Record Activity	# Record Cost of Activity
Address question of effectiveness:		
University	4	
4 Year College		
2 Year College		
Number students served in each department:		
University	1	
4 Year College		
2 Year College		
Test students attitudes:		
University	1	
4 Year College		
2 Year College		
Address question of cost/effectiveness:		
University		
4 Year College	1	
2 Year College	1	

	# Record Activity	# Record Cost of Activity
By increase in requests for services:		
University	39	
4 Year College	14	
2 Year College	10	
By increased circulation of materials:		
University		
4 Year College		
2 Year College	1	
Address question of cost effectiveness:		
University		
4 Year College		
2 Year College	1	
Expenditure/FTE Student:		
University		
4 Year College		
2 Year College	1	
By setting minimal standards:		
University	1	
4 Year College		
2 Year College		

	# Record Activity	# Record Cost of Activity
Address Question of Quality:		
University	39	
4 Year College	14	
2 Year College	10	
Surveys:		
University	1	
4 Year College		
2 Year College	4	
Time and Motion Studies:		
University		
4 Year College	1	
2 Year College		
Cost Accounting:		
University	10	
4 Year College	1	
2 Year College		
Cost/Standard Unit compared to Commercial Rates:		
University		
4 Year College	1	
2 Year College	1	

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Physical Presentation of Report - Informal:				
University	42			
4 Year College	16			
2 Year College	16			
More formal presentation, bound - soft cover:				
University	9			
4 Year College	1			
2 Year College	3			
Includes computer printouts in report:				
University	4	4		
4 Year College				
2 Year College	1	1		
Use computer for inventory:				
University	4	4		
4 Year College				
2 Year College				
Computer programs for equip- ment and software, distribu- tion and utilization statistics:				
University	3	3	2	
4 Year College				
2 Year College				
Use computer for acquisitions, expenditures and encumbrances per month:				
University	1	1		
4 Year College				
2 Year College				
Departments actual expendi- tures:				
University				
4 Year College	5	5	2	
2 Year College	5	5	5	
Inventory:				
University				
4 Year College				
2 Year College	1			

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Could be budget materials allocated to departments:				
University				
4 Year College				
2 Year College	1	1	1	
Revenue:				
University				
4 Year College	3	2	1	
2 Year College				
Budget (operational funds):				
University	9	9	5	
4 Year College	6	6	4	
2 Year College	7	7	6	
Student help:				
University	4	10	7	
4 Year College				
2 Year College	1	1	1	
Breakdown of student help:				
University	6	6	1	
4 Year College				
2 Year College	1	1	1	
New equipment purchased:				
University	5	3	1	
4 Year College	2	1		
2 Year College	1			
New equipment purchased by each unit of the center:				
University		2	2	
4 Year College				
2 Year College				
Media Center (LRC, IRC, etc.) - objectives and mission:				
University	15	15		
4 Year College	10	10		
2 Year College	2	2		
Media Center description of department:				
University	14	14	2	
4 Year College	17	14	1	1
2 Year College	16	15	3	1

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Summary of accomplishment during the year:				
University	26	26	3	
4 Year College	7	7		
2 Year College	13			
Size population serviced:				
University		2		
4 Year College				
2 Year College				
Students serviced:				
University	3	3		
4 Year College				
2 Year College				
Faculty serviced:				
University	3	3		
4 Year College	2	2		
2 Year College	1	1		
Media Center Staff breakdown:				
University	21	21	4	
4 Year College	6	1		
2 Year College	2			
Staff - Professional:				
University	6	6	1	
4 Year College	4	4		
2 Year College				
Staff - FTE (professional):				
University		1		
4 Year College				
2 Year College				
Staff - Classified:				
University		6	1	
4 Year College	2	2		
2 Year College				
Job Descriptions:				
University		2		
4 Year College				
2 Year College				
Organizational Chart:				
University		15		
4 Year College				
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Future Goals:				
University	10	10		
4 Year College				
2 Year College	2	2		
Recommendations:				
University	14	14		
4 Year College				
2 Year College	5	1	1	
Program Analysis and Justification:				
University	3	3		
4 Year College	1	1		
2 Year College				
Inventory by program:				
University		1		
4 Year College				
2 Year College				
Committees present:				
University		2		
4 Year College				
2 Year College				
Services rendered per/by each unit:				
University	1	1		
4 Year College				
2 Year College	2	2	2	
Services per year for 2+ years:				
University		1		
4 Year College	1	1		
2 Year College				
Number requests for services rendered to each institutional department per month:				
University	1	1		
4 Year College	2	2	2	
2 Year College				
Head count of students and community:				
University				
4 Year College				
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Instructional Media Lab and Self Instruction Lab:				
University	11	10	1	
4 Year College	4	1		
2 Year College	7	6		
Activity per semester:				
University	5	4		
4 Year College				
2 Year College	2	2		
Scheduled class assistance:				
University				
4 Year College				
2 Year College	1	1		
Number of students who attended lab:				
University	9	7		
4 Year College	1	1		
2 Year College	3	3		
Number of hours spent in lab:				
University				
4 Year College	1	1		
2 Year College	4	4		
Television courses:				
University				
4 Year College				
2 Year College	1	1		
Number of courses per year:				
University				
4 Year College				
2 Year College	1	1		
Number of students enrolled:				
University				
4 Year College				
2 Year College				
Number who completed course for credit:				
University				
4 Year College				
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Number of lectures per department:				
University	2	2		
4 Year College	1	1		
2 Year College				
Number of lectures per year:				
University	4	3		
4 Year College	1	1		
2 Year College				
Self instruction modules by class name and professor:				
University	3	3		
4 Year College				
2 Year College				
Inventory software:				
University	1	1		
4 Year College				
2 Year College				
Over 2+ years:				
University	1	1		
4 Year College				
2 Year College				
Number of tapes played by language:				
University				
4 Year College				
2 Year College	1	1		
Number of tests administered:				
University				
4 Year College				
2 Year College	1	1		
Number of instructors using facility:				
University				
4 Year College				
2 Year College	2	2		
Equipment usage workshops:				
University				
4 Year College				
2 Year College	1	1		

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
By name of instructor:				
University				
4 Year College				
2 Year College	1	1		
Equipment type:				
University				
4 Year College				
2 Year College	1	1		
Number of hours for workshop:				
University				
4 Year College				
2 Year College	1	1		
Number of students from each department:				
University				
4 Year College				
2 Year College	1	1		
Via television:				
University				
4 Year College				
2 Year College	1			
Computer assisted instruction:				
University				
4 Year College	1	1		
2 Year College				
Number of instructors utilizing:				
University				
4 Year College	1	1		
2 Year College				
Number of student account numbers issued:				
University				
4 Year College	1	1		
2 Year College				
Number of terminal connect hours:				
University				
4 Year College	1	1		
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Film Library:				
University	25	23	9	
4 Year College	6	6		
2 Year College				
Film Loans:				
University	25	23	9	
4 Year College	12	1		
2 Year College	7	6	2	
Activity per year for 2 or more years:				
University		14	4	
4 Year College		1		
2 Year College		2		
Films loaned to each institutional unit:				
University		11	5	
4 Year College		2	1	
2 Year College		1		
Projectionists supplied:				
University	3	3		
4 Year College				
2 Year College				
Film loans per semester:				
University				
4 Year College				
2 Year College		1		
Film catalogs:				
University		2		
4 Year College				
2 Year College				
Number of students serviced by Film Library:				
University		1		
4 Year College				
2 Year College				
Films purchased by theme or title:				
University		1		
4 Year College		1		
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Requests not filled:				
University		2		
4 Year College				
2 Year College				
Film previews:				
University		9		
4 Year College		2		
2 Year College		1		
Films booked for off campus:				
University		2	2	
4 Year College		1		
2 Year College		1		
Films not available:				
University		1		
4 Year College				
2 Year College				
Film cancellations:				
University		1		
4 Year College				
2 Year College				
Bookings per month:				
University		3	1	
4 Year College		1		
2 Year College				
Use daily computer printout:				
University		1		
4 Year College				
2 Year College				
Films kept in department:				
University		1		
4 Year College				
2 Year College				
Leader's supplied:				
University		1		
4 Year College				
2 Year College				
Trailers supplied:				
University		1		
4 Year College				
2 Year College				

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Films added to collection:				
University		11		
4 Year College		2		
2 Year College	5	4	3	
Film inspectors:				
University	3	3		
4 Year College				
2 Year College				
Film repairs:				
University	3	2		
4 Year College				
2 Year College				
Number of films ordered and processed by rental company:				
University	3	3		
4 Year College				
2 Year College				
Inventory of films in library:				
University	6	6	1	
4 Year College	1	1		
2 Year College	6	6		
Number of splices made:				
University		1		
4 Year College				
2 Year College				
Deliveries and pick-ups:				
University		1		
4 Year College				
2 Year College				
Duplicate prints:				
University		1		
4 Year College				
2 Year College				
Films used by departments from other sources:				
University		5	1	
4 Year College				
2 Year College	5	5	2	

	# With Activity	# Record Activity	# Record Cost of Activity	# Record Relationship of Cost
Film loans per year:				
University				
4 Year College				
2 Year College		1		
Number of free films used:				
University				
4 Year College				
2 Year College	2	2		
Films bought for each department:				
University				
4 Year College	1	1		
2 Year College				

Conclusions

An obvious conclusion was that there was great variability in what activities were reported and how they were interpreted. There were differences in reporting procedures which reflected both the organization of the media or development center and its parent institution. Annual reports of instructional development centers tended to be more descriptive while instructional media centers stressed tabulated data and more frequently included the recording of costs. Two year and four year colleges included several of their annual activities within the verbal description of the department, whereas most universities tabulated their activities and used a verbal description as extension and support of the data. Although much has been written about cost-benefit and accountability, little was reflected in the annual reports. The few attempts that were made at cost-benefit analysis were simple procedures. Many universities and colleges did not even prepare a departmental annual report because they thought that an excessive amount of time was needed to compile such a report.

A very common reporting method found was the "increases in request for services." But many times when the different services were reported, the time interval chosen for comparison varied (e.g. by month, semester, or year) dependent with the service reported. Sometimes a variation would exist in the type of service offered such as the type of equipment loaned, the type of production projects, etc. being compared to different categories of users such as departments, colleges, courses, or professors. Many institutions did not even include the size of the population they service. So that increases in requests for services, rather than being associated with "good quality" may be due to increases in the institution's population. Obviously, if

there are consistency problems in reporting methods within a single report, the problem is compounded when attempts are made to compare to other reports from other centers.

Though many tabulated categories existed in annual reports of the various centers which report inventory, personnel, activities, costs, etc., few writers attempted an interpretation about their cost-effectiveness relationships. Instructional media centers would record certain costs but would not give a complete cost accounting i.e. such as the total cost of a production. Costs usually listed were labor and materials with statistics on activities prevalent but costs related to particular activities were lacking. Most relationships had to be inferred by the reader.

The literature on cost-benefit models in education can be divided into two groups. In the first group are cost-benefit models for a department. However, we found the mathematics involved in estimating costs for these models to be complex, and the methods for deriving effectiveness to be very costly and time consuming. These methods included post testing of attitudes and/or achievement. Each of these models was tailored to the needs of the institution for which they were devised, and the models would have to have been re-evaluated for use at the University of Delaware.

The other group includes cost-benefit models for a particular type of teaching alternative such as computer assisted instruction, satellite instruction, etc. In these models the costs were estimated for one alternative and compared to the costs of a standard method of instruction. The comparison was made on the basis of cost/unit, usually using cost/FTE student. Again, an effectiveness measure was derived by achievement and/or attitude testing.

One problem we encountered was the high cost of implementing a model which used testing to measure effectiveness. Another problem was the lack of flexibility on the part of the instruction cost-benefit models in their methods for estimating costs. The estimation of costs was tailored to a particular situation--one type of instruction alternative conducted in one organization. And these models did not lend themselves to be used in a department which conducts many different types of activities.

Though our survey of annual reports found 563 categories, we could not locate what we considered to be a "credible" model. An extensive review of literature found not only numerous articles addressing cost-benefit considerations and some mathematical models but also numerous problems. We concluded that cost-benefit analysis in instructional development centers' annual reports is not being credibly documented to withstand critical scrutiny. Though many tabulated categories existed in annual reports of the various centers which reported inventory, personnel, activities, costs, etc., few people attempted an interpretation about cost-benefit relationships. Most relationships had to be inferred by the reader. Therefore, it was evident to us that the "ideal" model did not exist and we had to create our own model.

Recommendations

Having gone through the process of trying to establish a cost-benefit model, we recommend avoiding complex models. Probably those who must understand and act upon your report may consider them suspect and reject them. We believe that it is very important to consult with the powers-that-be if they will support or can understand your model. Therefore, it is important that the model conform to the institutional definition of "cost-benefit,"

regardless of how crudely defined. The model must relate to the accounting procedures of the institution or it cannot be compared to the total operation. The model must not only relate to accounting procedures, but also to the objectives of the institution and the center. Credibility depends on what the center's activities should entail as designated by the institutions objectives.

It also became obvious that comparisons have to be internal to the institutions instead of external. This because of the great variability in the reporting procedures. The data base changes so radically both by type of institution and activity to make comparisons difficult.

In summary, we concluded from our research that the model we wanted to develop had to include the following considerations: (1) a complex, mathematical model had to be avoided, (2) the model had to be comprehensible to administrators who would use the data, (3) growth comparisons had to be made internally, (4) any accounting procedures used had to be consistent with established procedures, (5) data bases had to be the same as those used by the university, (6) any cost-benefit analysis procedures must be similar to those already used by the university, (7) the objectives of our organization had to be clearly stated so a benefit comparison could be made, and (8) the model had to be "useful."

The implications for the future are that as money becomes tighter educational development programs are as vulnerable as any academic program. Educational development programs must develop a credible cost-benefit reporting procedure. Centra's report on "Faculty Development in the United States: Practices and Programs" indicates that only 14 percent of the respondents have evaluated their programs or activities.

Is excellence in education being documented? It all depends if the annual reports really reflect institutional practices including those who submit no reports. At best, the outside observer must infer that excellence exists at an adequate level to insure the continued operation of the center. But this study neither located a report nor a model which these researchers though credibly documented cost-benefit sufficiently to withstand critical external scrutiny.

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